

Claims

- [c1] 1. A system for cerebral temperature control of a living being, comprising:
- a double lumen balloon catheter means configured to be introduced through a nostril of a living being and to be placed with its tip at the level of the back of the tongue; said double lumen balloon catheter means comprises a first lumen and a second lumen, said first and second lumens are in fluid communication by means of a set of end openings, said second lumen being configured as an expandable balloon;
 - a temperature regulator connected to a reservoir comprising a fluid, said temperature regulator being configured to regulate the temperature of said fluid;
 - means for circulating said temperature regulated fluid from said reservoir into said first lumen, from said first lumen into said second lumen, and from said second lumen back to said reservoir,
- whereby said balloon, when in use, is expandable to cover the inner surface of the nose and epipharynx.
- [c2] 2. The system of claim 1, wherein said temperature regulated fluid is circulated in a closed fluid system.

- [c3] 3. The system of claim 1, wherein said means for circulating said temperature regulated fluid comprises a set of tubings configured to connect said catheter means to said reservoir.
- [c4] 4. The system of claim 3, wherein said double lumen balloon catheter means comprises:
- an inlet in fluid communication with said reservoir and with said first lumen, said inlet being configured to receive said fluid from said reservoir;
 - said first lumen having a set of distal end openings in a front end portion of said catheter means, said end openings being arranged in fluid communication with said second lumen; and
 - an outlet in fluid communication with said second lumen and with said reservoir.
- [c5] 5. The system of claim 4, wherein said inlet and outlet are arranged at an end portion of the catheter means.
- [c6] 6. The system of claim 1, wherein said circulation of said fluid is accomplished by means of the hydrostatic pressure of said fluid in said reservoir.
- [c7] 7. The system of claim 1, wherein said means for circulating said temperature regulated fluid further comprises a pumping means arranged between said reservoir and

said catheter means by means of tubings.

- [c8] 8. The system of claim 1, wherein said means for circulating the fluid is configured to provided a flow rate of 200 – 1000 ml /min.
- [c9] 9. The system of claim 1, further comprising a pressure regulating nozzle arranged at the tubings at the reservoir, said pressure regulating nozzle being configured to provide a resistance in the tubings.
- [c10] 10. The system of claim 1, further comprising a temperature sensor configured to be arranged in an auditory canal of the patient, to register the temperature of the brain and to automatically control the temperature regulator to regulate the temperature of the fluid in the reservoir in order to maintain the temperature of the brain at a desired level.
- [c11] 11. The system of claim 10, wherein said temperature sensor is an IR thermistor.
- [c12] 12. The system of claim 10, wherein said desired brain temperature level is approximately 31– 32 degrees Celsius.
- [c13] 13. The system of claim 1, wherein said catheter means is manufactured of a material such as plastic, synthetic

latex, silicone or Gore-Tex.

[c14] 14. A double lumen balloon catheter means for use in the system according to claim 1, said catheter means being configured to be introduced through a nostril of a living being and to be placed with its tip at the level of the back of the tongue; said catheter means comprises a first lumen and a second lumen, said first and second lumens are in fluid communication by means of a set of end openings, said second lumen being configured as an expandable balloon.

[c15] 15. The catheter means of claim 14, further comprising:

- an inlet arrangeable in fluid communication with a reservoir and with said first lumen, said inlet being configured to receive a fluid from said reservoir;
- said first lumen having a set of distal end openings in a front end portion of said catheter means, said end openings being arrangeable in fluid communication with said second lumen;
- an outlet arrangeable in fluid communication with said second lumen and with said reservoir.

[c16] 16. The catheter means of claim 15, wherein said inlet and outlet are arranged at an end portion of the catheter means.

[c17] 17. The catheter means of claim 14, said catheter means being manufactured of a flexible material such as plastic, synthetic latex, silicone or Gore-Tex.

[c18] 18. A kit of disposables for use in the system according to any of the claims 1 – 13, comprising a plurality of tubings, and a double lumen balloon catheter means.

[c19] 19. A method for cerebral temperature control, comprising the steps of:

- introducing a double lumen balloon catheter means through a nostril of a living being;
- placing said catheter means with its tip at the level of the back of the tongue;
- temperature regulating a fluid in a reservoir;
- circulating said temperature regulated fluid from said reservoir into a first lumen of said catheter means, from said first lumen into a second lumen of said catheter means, and from said second lumen back to said reservoir, whereby the balloon are expanded to completely cover the inner surface of the nose and epipharynx and whereby said temperature regulated fluid circulates in a closed fluid system.

[c20] 20. The method of claim 19, wherein said step of circulating said temperature regulated fluid comprises the step of pumping said fluid from said reservoir, to said

catheter means and back to said reservoir via said first and second lumens by means of a pumping means.

[c21] 21. The method claim 19, wherein said temperature regulated fluid circulates at a flow rate in the interval of approximately 200 – 1000 ml/min.

[c22] 22. The method of claim 19, further comprising the step of placing a temperature sensor in an auditory canal of the living being, of registering the brain temperature by means of said temperature sensor and of temperature regulating the fluid in dependence of said registered brain temperature in order to maintain the brain temperature at a desired level.

[c23] 23. The method of claim 22, wherein the step of temperature regulating said fluid comprises the step of cooling said fluid in order to obtain a brain temperature of approximately 31 – 32 degrees Celsius.

[c24] 24. A system for cerebral temperature control of a living being, comprising:

- a double balloon catheter means configured to be introduced through a first nostril of a living being and to be placed with its tip at the level of the back of the tongue; said double balloon catheter means comprises:
- a first balloon configured to, when in use, fixate the

soft palatinum and occlude the entrance to the mouth;
and

- a second balloon configured to, when in use, occlude the first nostril;

- a second balloon catheter means configured to be placed into a second nostril, the second balloon catheter has a balloon configured to, when in use, occlude the second nostril;

whereby a temperature regulated fluid can be injected into the first catheter, said fluid leaves through side holes between the balloons of the first catheter and flushes the cavum nasae and epipharynx and leaves through the second nostril by means of the second catheter means, whereby the naso-pharyngeal membranes are temperature regulated.